

REMARKS

In order to further distinguish the presently claimed invention over the prior art cited by the Examiner, Claim 1 has been amended to state that the starting material ester and alcohol are brought into contact with an amorphous catalyst comprising an amorphous zirconium oxide and aluminum oxide and that the content of the aluminum oxide, calculated as the element, is from 25 to 1 wt.% based on the zirconium elemental weight. Bayense et al does not teach that Zr-P and Zr-Ti catalysts show a higher conversion rate than the silicate catalysts disclosed therein. Further, this reference does not teach that when Zr-Al type catalysts are amorphous, especially high conversion rates can be achieved. The Examiner has combined Bayense et al with Ginosar et al. However, this second reference has no disclosure with respect to the claimed types of catalysts or the superiority of the claimed types of catalysts compositions. Therefore, even with the combination made by the Examiner, the claimed invention could not have achieved.


The Zr-Al catalyst specified in Claim 1 shows especially higher conversion rates as compared with the other catalysts as apparent from a comparison of samples 9 to 17 with other samples. Especially, it is noted that sample 11 shows a higher conversion rate of 59% than 56% of sample 23 containing silicon oxide under the same reaction conditions of 200°C and atmospheric pressure (Table 3). Further, the inventors confirmed that sample 23 showed a conversion rate of 69% at a reaction temperature of 250°C and atmospheric pressure, and this is far inferior to sample 12 which shows a very high conversion rate of 80% at the same reaction conditions (Table 3). Although the test results of sample 23 at a reaction temperature of 250°C and atmospheric pressure are not shown in Table 3, applicants will present them if requested by the Examiner.

The Zr-P catalyst defined in Claim 12 also shows a high conversion rate. It is noted that sample 8 shows even a higher conversion rate of 83% as compared with 80% of sample 10 of Claim 1 under the same reaction conditions.

The Zr-Ti catalyst defined in Claim 16 shows a higher conversion rate than the Zr-Ti catalyst containing a crystallized part. The conversion rates of amorphous samples 2 and 19 are higher than those of partially crystallized samples 1, 3-5, 18 and 20-22. The claimed amorphous catalysts having the specified components in the specified compositional range show high conversion rates and enable the production of target esters with good efficiency.

For the reasons advanced above, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over the prior art cited by the Examiner. Favorable consideration is respectfully solicited.

Respectfully submitted,

  
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